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Factors related to oral communication ability in profoundly deaf children

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Introduction

This pilot study was an attempt to determine which factors might be related to the development of"good oral communicators" within a deaf school setting. These children are the ones who are judged by their teachers as having above average receptive and expressive abilities in the classroom. They are also the children who show, through their great effort, a desire to be understood. It was hoped that the acquisition of such information could enable educators to predict which children will be successful in oral communication and which children may experience more difficulty. Such information might also prove beneficial for the planning of remedial programs for deaf children. It was also felt that through a study such as this, it could be determined which items may or may not be important to include in the children's records.

The Ewings (1947) felt that success in oral communication was dependent on duration and kind of educational treatment, native intelligence, temperment, sight and physique. Pintner (1929) and Evans( ) found no correlation between intelligence and speechreading ability. O'Connor(1960) attempted to assess factors affecting degree of success or failure under conditions of integration in a hearing school. Those children who were considered to be doing well were found to be more willful, tenacious, and out-going.

The benefits of early amplification and training for hearing impaired children have been emphasized in recent years. However, Craig (1964) found no significant differences in lipreading ability between groups attending and not attending

preschool programs. Serious questions must be raised about the selection of children who were investigated. Hudgins (1954) found improvement in word-recognition ability over a seven year period of acoustic training with high-quality hearing aids. Armbruster (1966) compared children in the Division for the Deaf at Central Institute for the Deaf with those in the Division of Speech Pathology. The latter group was made up of children who had unusual difficulties in language learning. She found significant differences in age when hearing aid first used, age of first educational guidance, age when problem first suspected, age when definitely diagnosed, and family size. Those children in the Division for the Deaf had the benefits of early training and amplification. Their problem was suspected and diagnosed sooner with less consultant shopping in between. They also had fewer siblings.

Researchers have shown that the most powerful predictor of success in oral communication is auditory acuity. Boothroyd( ) found that the amount of residual hearing directly affects the child's ability to acquire intelligible speech. He found that children with hearing levels in excess of 90 dB. at 1,000, and 2,000 Hz. had only a 10% chance of falling in the "good intelligibility" group. Evans found that children with hearing losses of less than 94 dB. for 500, 1K and 2K Hz. performed better on a test of listening and lipreading abilities than those with losses greater than 94 dB. For this study, this variable hearing level has been controlled in order to focus on the variations within a profoundly deaf group.

Method

A list of names was obtained of all children (5 years and above) in the Pre-primary and Primary departments of Central Institute for the Deaf who had an average hearing threshold level for 500, 1K, and 2K Hz. of greater than 95dB ISO. Questionnaire forms were sent to their teachers that asked them to rate three general parameters (according to a five point scale) of the children's communication skills (see separate pages). The first two factors came under the heading of Actual Communication Performance. They were Speech Production and Speech Reception. The third dimension dealt with how hard the child tries to communicate. This was labelled Amount of Effort Put into Expression. 15 children from the Pre-primary department and 30 children from the Primary department were used for this study. Of these children, 24 were males and 21 were females.

The Computer-Record Keeping System ("CORKS") was employed in order to obtain the related background information about the children. The variables that were investigated were:

Age Hearing Aid First Used

Age of First Educational Guidance

Age Problem First Suspected (A)

Age Definitely Diagnosed (B)

B minus(-) A

Residential Status (child lives with...)

Number of Siblings

Birth Order

However, Not all information was available for every child who was studied. Each independent variable was plotted on a scatter diagram relative to the three dependent variables of Speech Production, Speech Reception, and Amount of Effort put into Expression. Also, in an attempt to find out how related these dependent variables were to each other, Speech Production scores were plotted relative to Speech Reception and Speech Effort scores.

Results and Discussion

One of the most difficult problems in a study of this sort is in constructing a questionnaire that is clear, easy to mark, and that will be interpreted similarly by all teachers. Furthermore, by having only one teacher evaluate each child, there is the risk that her own frame of reference is quite different than another teacher's. The following results were tabulated when these questionnaires were returned.

	Rating					
	good 5	4	3	2	1	poor
Speech Production	3	9	17	11	5	Number of Children
Speech Reception	0	14	18	12	1	
Amount of Effort put into Expression	4	6	28	7	0	

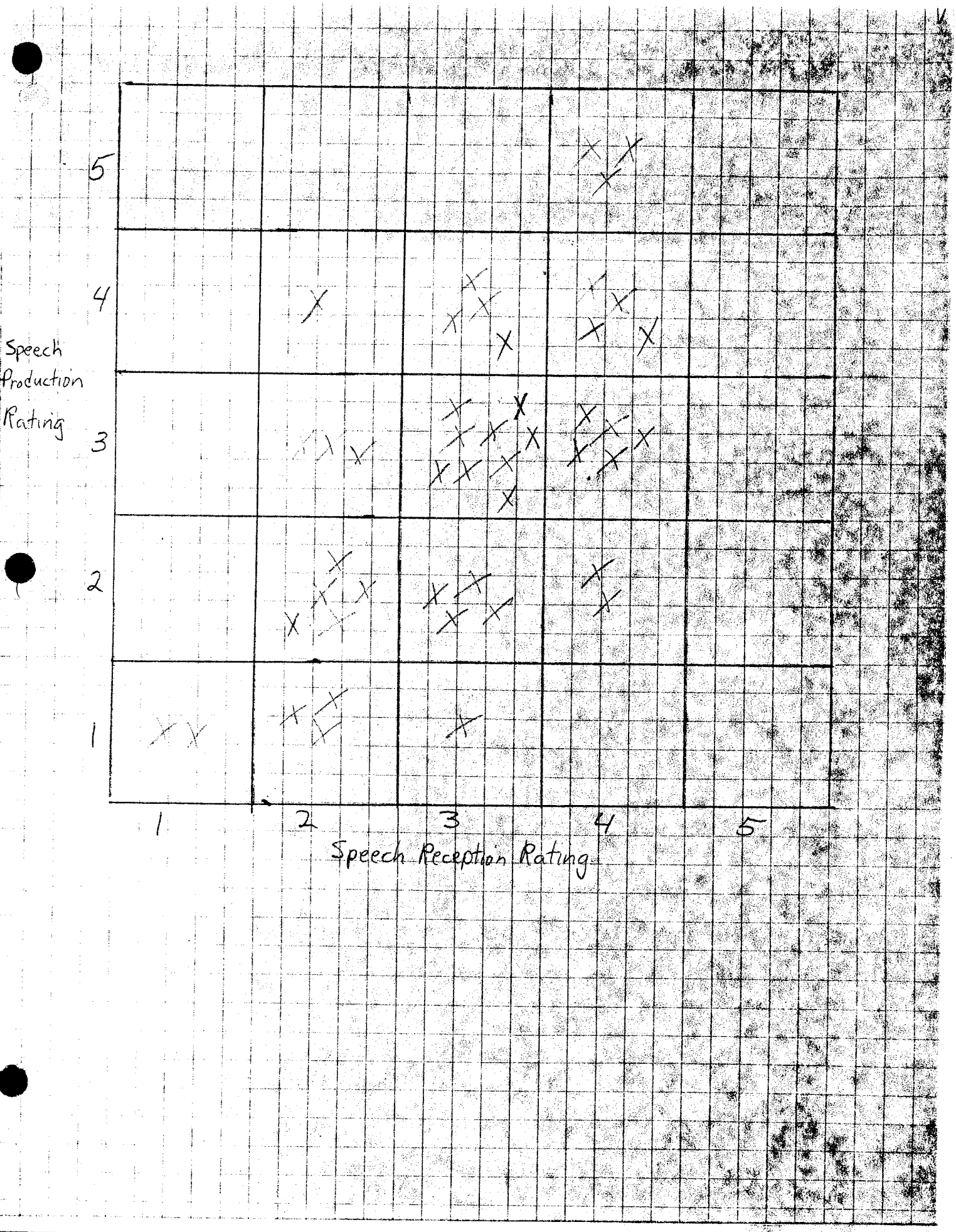
The Speech Production ratings scores showed a large proportion predominant amount of children falling in the average range with slightly more children falling below average than above. Similarly, the reception scores seemed to peak at three. No children received a score of five, and this could certainly be attributed to the fact that these were children who had little usable hearing in the speech range. The Effort rating was included in an attempt to examine get at some of the personality differences between children. 62.2% of the children fell in the average range for this variable. A possible reason for this predominance of 3's was the fact that this type of rating isn't ~~so~~ commonly used by teachers and was therefore more difficult to assess. ~~Because~~ For reason of this, the teachers might have felt more at ease marking the children "average". Another possibility was that the young

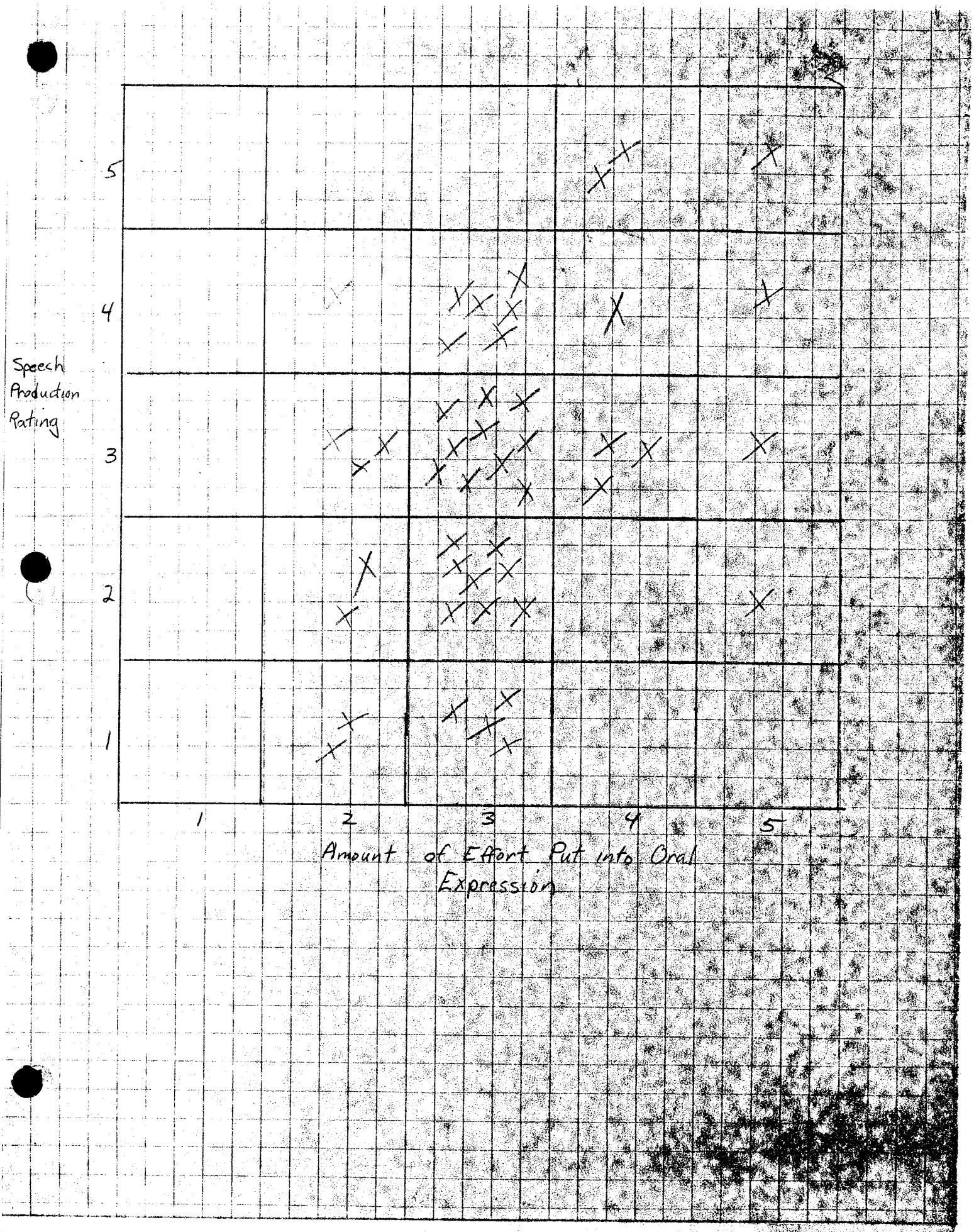
child puts out only an average amount of effort to make himself understood. Possibly, at this young age, it has not yet become as important to him, or he lacks the skills to change his speech so he will make himself understood. There were no significant differences in the scores on any of the three ratings between males and females.

The Speech Production ratings were plotted relative to the Speech Reception ratings. A positive correlation between these factors was found, indicating that a child with better reception skills usually also will have better speech. The Production ratings were also plotted relative to the Effort scores. A correlation between these two factors was much less evident partly because of the predominance of "3" ratings in Effort. Also, there are some children who have poor speech who are still persistent in making themselves understood.

Age Hearing Aid First Used

It was hypothesized that the earlier a hearing impaired child was introduced to sound through amplification, the better were his chances of developing more natural speech and of learning to receive incoming speech information with more proficiency. The former was not completely true for this study. Differences in hearing, between the children, in the remaining frequencies may have been partially the cause. A slightly more positive correlation was found between the Speech Reception ratings and the age that the hearing aid was first used. The earlier the hearing aid was used, the better the child did in reception of speech.


5
4
3
2
1
Speech Production Rating
1
2
3
4
5
Speech Reception Rating


Speech Production Rating
5
4
3
2
1
1
2
3
4
5
Amount of Effort Put into Oral Expression

The age when the hearing aid was first used seemed to have no bearing on the amount of effort the child put into making himself understood.

Age of First Educational Guidance

The Speech Production, Reception, and Effort scores were neither positively nor negatively correlated with the age of first educational guidance. This may be at least partially attributed to the limited sample used for this portion of the study. This information was not always available in the "CORKS" file.

Age When Problem First Suspected

The age when the child's problem was first suspected also did not seem to be correlated with Speech Production scores. However, some correlation was found between this independent variable and speech reception. The earlier the problem was suspected, the better was the child's reception. Possibly, at the time when the mother suspected her child had a hearing problem, she started doing some very positive things to get her speech across to her child, e.g., holding the child close when talking. Maybe there was some carry-over of these benefits to the child's school years. As far as speech effort, there was a slight tendency for the child whose problem was suspected earlier to put forth more effort in speech.

Age When Problem was Definitely Diagnosed

No correlation was found between ratings of speech production, speech reception and effort put into production and the age of definite diagnosis.

Age Definitely Diagnosed minus (-) Age Problem First Suspected

This variable was selected after consideration of the findings of Armbruster. She found that a long period of shopping for and waiting for answers from professional people was a hardship on the child and parent. This might at least contribute to some of the problems presented by the child with language learning problems. However, as with most of the previous variables, no correlation was found between it and the dependent variables of production, reception and effort.

Residential Status

Eighteen out of the forty-five children lived in a dormitory while twenty-four lived at home and three lived in foster homes. In general, the residential children scored average or below-average on the production, reception, and effort indices. The same was true for children living in foster homes. However, the day students, living in their own homes tended to score average or above-average on these variables.

For the speech production rating, the tendency for the residential pupils to score lower may be attributed to the fact that not as much pressure is put on them during after school hours to speak clearly. However, it was significant that the most common rating of speech production for the child

living at home was only "3". The severity of these children's hearing losses must certainly be a major reason for these very average scores. Also, the child living in a foster home may not be pressured as much into refining his speech as the child living with his own parents. The same general principles may be applied to speech reception, as there was a definite similarity between these ratings. Most of the children who scored 4's or 5's on effort were children living at home. Possibly, this living situation helps to foster such persistence, in the child, to make himself understood.

Number of Siblings

The range of number of siblings was zero to ten. No correlation was found between number of siblings and the speech production and reception ratings. However, a tendency for children scoring high on effort to have fewer siblings was noted. Perhaps, the development of this characteristic is somewhat dependent on having fewer siblings to compete with.

Birth Order

It was found that first children seemed to have some advantage on the reception and effort ratings. This was not really the case with the production scores. As a matter of fact, the fifth, sixth, and ninth children seemed to do rather well in speech production. However, some high scores were obtained for the first and second children.

Conclusions

Several reasons for the general lack of correlation between the dependent and independent variables selected have been hypothesized. First of all, the variables chosen may not have been the most important ones. Several factors may even exist that are not as easy to assess in an objective manner, e.g., various personality traits. Secondly, speech production, reception and effort may really be dependent on a particular combination of factors rather than on single variables. Finally, it is felt that the child's hearing acuity may be the most important variable. However, for this study, this factor was at least partially controlled.

Summary

This study was an attempt to gather information about factors which may be highly correlated with the deaf child's ability to communicate. It was felt that the acquisition of such data could prove beneficial in the future planning of remedial programs for hearing impaired children. However, the information gathered in this research project was highly inconclusive. High correlations between any of the variables were not evident.

In conclusion, this has only been a pilot study, a prototype for a more extensive, better controlled investigation which may be attempted at some future time by members of the research staff. At that time more effort could be put into wording the questionnaire, more variables from case history forms could be related, and correlational analysis could be done by computer. In addition, hearing loss which was partly controlled in this study, could be included in such a future undertaking, as it probably is closely related to successful communication.

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